ABSTRACT:

An optical signal processor comprises a first input terminal for a pulse signal light (10) with a signal wavelength, a second input terminal for a probe light (14) with a probe wavelength different from the signal wavelength, a first splitter (16) to split the probe light (14) into two portions, an XPM optical device (20), to which one portion of the split output lights from the first splitter (16) and the pulse signal light (10) enter, to modulate the one portion of the split output lights from the splitter (16) according to amplitude variation of the pulse signal light (10), a second splitter (24) to split the light with the probe wavelength phase-modulated by the XPM optical device (20) into two portions, a first combiner (28) to combine the other portion of the spilt output lights from the first splitter (16) with the one portion of the split output lights from the second splitter (24) in in-phase relation during a period corresponding to a non-pulse period of the pulse signal light (10), and a second combiner (32) to combine the other portion of the split output lights from the second splitter (24) with the output light from the first combiner (28) in in-phase relation during a period corresponding to a pulse period of the pulse signal light (10).